

Asian Gypsy Moth

The Asian gypsy moth (AGM) (*Lymantria dispar*), named for its home continent, is a voracious pest of trees that poses a major threat to forest habitats in North America.

Background

AGM was first identified in North America late in 1991 near the Port of Vancouver in British Columbia, Canada. Moths were discovered in Washington, Oregon, and British Columbia shortly after that.

Ships infested with egg masses from ports in eastern Russia probably introduced the pest to North America while visiting ports on the West Coast. Scientists believe that while the ships were docked, larvae hatched from the eggs and were blown ashore. APHIS and State officials eradicated that infestation in the Pacific Northwest through trapping and spraying activities.

Another AGM infestation, this one in Sunny Point, NC, was caused by moths flying from a ship carrying infested cargo containers from Germany. AGM was not known to occur in Europe until tracebacks of this introduction led APHIS there. The North Carolina infestation was declared eradicated in November 1997. Also in 1997, AGM was again detected in the Seattle-Tacoma, WA, area. The joint Federal and State eradication program should end in late 1999, provided no adult AGM's are trapped.

Impact

If established in the United States, each AGM female could lay egg masses that in turn could yield hundreds of voracious caterpillars with appetites for more than 500 species of trees and shrubs. AGM defoliation would severely weaken trees and shrubs, killing them or making them susceptible to diseases and other pests. Caterpillar silk strands, droppings, destroyed leaves, and dead moths would be a nuisance in homes, yards, and parks.

A pest-risk assessment prepared by the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) and the USDA's Forest Service concluded that because of similarities between Asian and North American ecosystems, the AGM has great potential for colonization in North American forests.

Comparing Gypsy Moth Pests

The AGM is similar to the European gypsy moth that is found in the northeastern United States and southeastern Canada. Like the European gypsy moth, AGM prefers forest habitats and can cause serious defoliation and deterioration of trees and shrubs. The European gypsy moth has more than 250 known host plants but prefers oak. The AGM has a much broader host range, including larch, oak, poplar, alder, willow, and some evergreens.

AGM females are active fliers, unlike the flightless female European gypsy moths. The ability of AGM females to fly long distances (up to 20 miles) makes it probable that the AGM could quickly infest and spread throughout the United States. In contrast, the European gypsy moth has taken more than 130 years (since 1869) to spread throughout the Northeast.

In the East, European gypsy moths defoliate an average of about 4 million acres each year, causing millions of dollars' worth of damage. If AGM were to become established in the United States, the damage could be even more extensive and costly.

Life Stages

The AGM matures through four life stages: egg, larva (caterpillar), pupae (cocoon), and moth.

AGM egg masses may be found on trees, stones, walls, logs, lawn furniture, and other outdoor objects. Each egg mass can contain more than 1,000 eggs. The mass is covered with buff or yellowish fuzz from the abdomen of the female. While the velvety egg masses average about 1–1/2 inches long and about 3/4 of an inch wide, they are often as small as a dime.

AGM eggs begin hatching into caterpillars in the spring. All of the damage caused by the AGM is done during the caterpillar stage, as the insects feed on leaves during this active period of growth. AGM caterpillars stop feeding when they enter the pupal or cocoon stage. This stage begins in June or July, depending on weather and temperature. Adult moths emerge from the dark brown pupal cases in 10 to 14 days. Adult males have grayish-brown wings and a wingspan of 1–1/2 inches. Adult female moths are white and larger, with wingspans up to 3–1/2 inches or more.

AGM's do not feed in the moth stage (which lasts 1 to 3 weeks) but only mate and lay eggs. Eggs are laid between July and September, depending on weather and location. The eggs remain dormant during the winter and develop and hatch the following spring.

Spread of Infestations

AGM infestations spread in several ways. Adult female moths may fly to previously uninfested areas to lay eggs, thus spreading the infestation. Or, newly hatched AGM caterpillars may climb to tree crowns, where the wind picks up their silken thread and carries them to other areas.

In addition, people can inadvertently transport egg masses. AGM egg masses are tolerant of extremes in temperature and moisture and travel well on logs, lawn furniture, nursery stock, pallets, shipping containers, and on the hulls and riggings of ships.

Controlling the Pest

APHIS has been designated as the lead Federal agency in dealing with AGM, because APHIS is responsible for keeping exotic agricultural pests and diseases out of the country. As part of coordinated efforts, APHIS will inspect foreign vessels and cargo for AGM egg masses. During certain high-risk periods, ships identified as likely to carry AGM egg masses will not be allowed to dock at U.S. ports without inspection.

Eradication Tools

The most common eradication method used against AGM is the naturally occurring *Bacillus thuringiensis* (Bt) bacteria. Bt produces a caterpillar-specific toxin. When sprayed on tree leaves, Bt will disrupt the digestive system of caterpillars that ingest the leaves, suppressing their appetites. The caterpillars' movement then slows, and death results, generally in 7 to 10 days.

Public Participation

People can take several actions to assist in the detection and management of this pest:

- Report any findings of egg masses on trees, lawn furniture, fences, walls, or elsewhere on private property to Federal or State agriculture officials;
- Cooperate with any restrictions that might be imposed locally because of an AGM detection;
- Allow authorized agriculture workers access to property to inspect insect-monitoring traps.

Additional Information

For more information about the AGM, or to learn more about Federal regulations on moving outdoor household articles, contact one of the following:

- Your State's regulatory officials, usually listed under department of agriculture, plant protection or regulatory division, in the State government section of your telephone directory.
- A U.S. Federal regulatory official, listed in the Federal Government section of your telephone directory under USDA, APHIS, Plant Protection and Quarantine. If you have access to the World Wide Web, point your browser to:
<http://www.aphis.usda.gov/ppq>

Use the "Comments" link to send us an e-mail request for more information.

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